

defortec

design  
for  
technology

# Award-winning industrial design made by defortec

Proof of the work quality of defortec are numerous design awards we won in the recent years. Famous prizes like the iF product design award, the Red Dot design award, the Focus -design award Baden Württemberg and the design award Chicago, furthermore the „Designpreis der Bundesrepublik Deutschland“ - award of the awards - all in all we have been awarded already more than 50 times for our design.

This amount of prizes has special importance regarding that they have been awarded mainly for technical products, mostly from the mechanical engineering sector. Here we want to say thank you to our clients, who have made this possible with their open mindedness and their enthusiasm for industrial design.

German Design Award 2015 Special Mention  
3x Nomination German Design Award 2015  
Focus Open 2014 Special Mention  
4x iF Product Design Award 2014  
Focus Open 2013 Silver  
iF product design award 2013  
GOOD DESIGN Award 2012 Chicago USA  
Nomination design award BRD 2012  
reddot design award winner 2012  
2x iF Product Design Award 2012



Nomination design award BRD 2010  
4x nomination design award BRD 2009  
Focus Green 2008 Gold  
Focus Green 2008 Silver  
2x iF product design award 2008  
GOOD DESIGN Award 2008 Chicago USA  
Nomination design award BRD 2008  
Focus Security 2007 Silver  
Nomination design award BRD 2007  
iF product design award 2007  
Focus Energy 2006 Silber  
iF product design award 2006  
Nomination design award BRD 2006  
reddot design award winner 2005  
Animago 2003  
BDG Logo award 2002  
iF exhibition silver award 2001

## About us



visionary design for products.  
smart solutions for success.  
**design for technology.**

defortec GmbH is an innovative company specialized in customised design and product developments. Besides product and user interface design, we have years of experience in capital goods design and in developing designs for technical products. From laboratory devices to injection moulding machines - we develop high-tech designs.

The success of our customers and over 50 national and international design prizes are proof of the quality of our work. Stefan Grobe, designer and executive shareholder in defortec is a judge for several different international design prizes and lecturer in product and industrial design.

We are looking forward to a successful collaboration!

# Reference customers



DAIMLER



*Vestas*®

**BREUNING**



**NNLG**

DIEFFENBACHER



.GP solar  
INSPECT



QUNFENG



**centrotherm**  
photovoltaics

*KRAUSSMAFFEI*



*SPECS*



**palamides**

*bader gruppe*

Laboratory  
technology



visionary design for products.  
smart solutions for success.  
**design for technology.**

Medical design



Mechanical  
engineering



Interface design



# visionary design

For defortec, the core tasks of successful design developments are the emotionalisation, individualisation and creation of brand-specific product features.

Our customers' products have a clear design vocabulary and a high recognition value.

Through our design, innovations become visible. We recognise and optimise operation processes, we create confidence and trust in the new product and improve ergonomics and process technology.

# smart solutions

We create innovations. For us, this not only means thinking creatively, but also developing new, intelligent technical solutions. Connections, hinges, opening systems and material innovations in new contexts. We create innovative impetus for the products of the future.

A particular focus of defortec's services are design concepts for the economically efficient implementation of new products. Our mission - **design to cost** - stands for intelligent design that allows our customers cost-saving production and thus rapid profitability.



Focus Open 2013  
Silver



product  
design  
award

2014





# design process

## Analysis

First we analyse the client's product in detail to discover potential for development in time. How does the product work? What functions does it have? What established basic components must be integrated? Where are the ergonomic requirements? How is distinction from the competition achieved? In what area is our customer's special expertise? The information worked out from these questions, combined with our extensive experience in product development, are the basis for the following design development.

## Design conception

In this important work phase we develop product visions, work out new and logical functioning concepts and emotionalise the product by design.

Singular and trend-setting structures, which connect form, material and function create the product's future unique character. These innovative design concepts are worked out in detail, reviewed using variants, cleanly presented and developed in an continuous dialogue with the customer.

## Innovation

The decision for fundamental improvement of a product, an unobstructed view, offers many possibilities even for complex technical issues. By intelligent questioning and innovative suggestions, new machine structures arise that can lead to a clear reduction of the production costs in structure and housing.

In some customer projects, we achieved enormous cost reductions up to 45% in housing construction.



Process example | C.FIRE | Solar cell production



Focus Open 2013  
Silver



product  
design award

## Design elaboration

The detailed development of a new design concept takes place until it is handed over for final constructions. It is created in close cooperation with the customer to achieve all project objectives that have been defined together.

## Construction

We offer detailed 3D CAD drafting to create the perfect product from a design concept. We work with the latest CAD software such as SolidWorks and thereby offer a smooth transfer of data with clients and suppliers. The connection between this expertise and realization with the free spirit of design are a guarantee of future-orientated and realizable design development.

## Implementation process

The professional coordination and detailed support of the manufacture and possible suppliers round off our service portfolio. In close cooperation, we ensure the perfect realization of the new concept.

## Corporate product design

The transfer and adaption of a design concept to a product family increase the effectiveness of the new design, enhance brand recognition and strengthen the new brand presence. A convertible and unique brand design achieves distinction from competitors, creates added value and enhances the acceptance of the product.

## Visualisation, animation and model making

For service on top we offer photorealistic product presentations in image and film, long before the real product exists.

An important element for successful product marketing. Furthermore, we build highly complex design models in every scale in-house, ready for trade fair exhibitions.

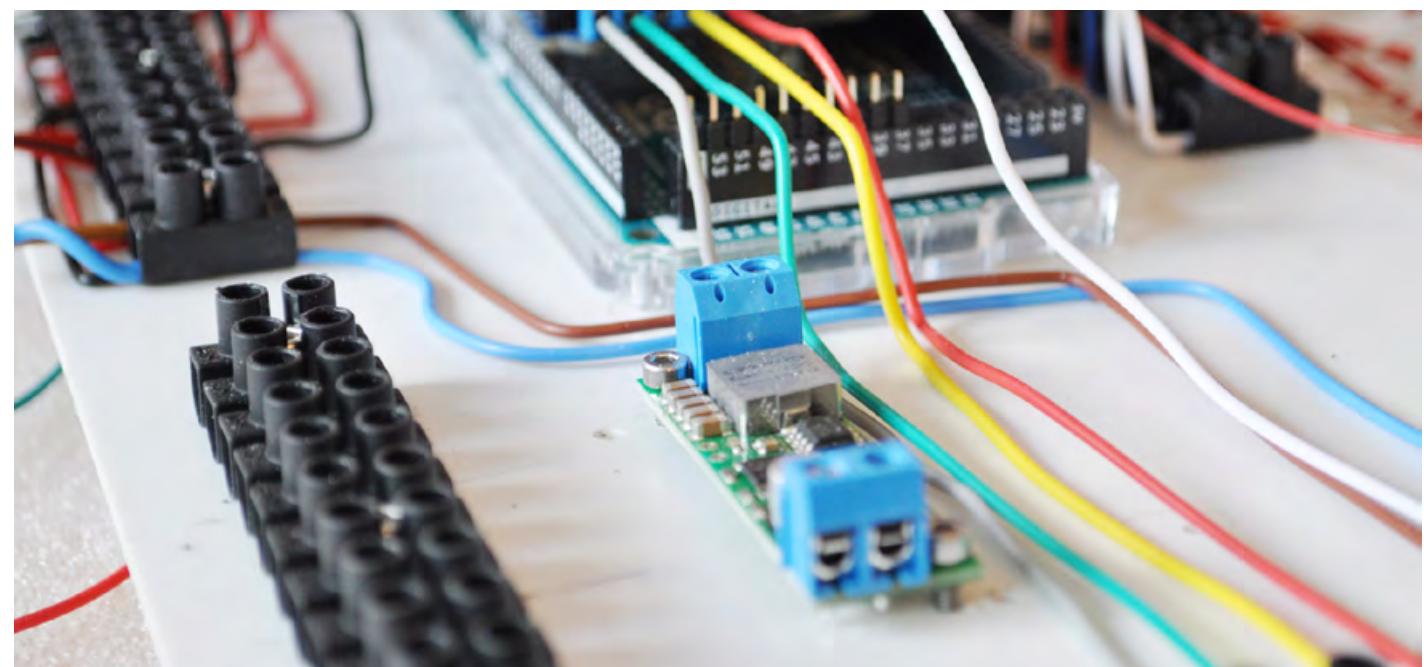


## Prototypes and model making

In our professional workshop, where we make our models, we are able to create in-house functioning models, prototypes or design models in-house. We understand the process of model making as an important component for each development of a product. For this reason, we place value on internally manufactured models.

With our own workshop equipment, we have the ability to generate models quickly which are made out of different materials. In addition, we revert to a network of qualified suppliers, to conform to exact deadlines of our clients.

We produce with a high level of precision and attention to detail and therefore we develop fascinating models and pre-production runs for your exhibition presentation or your performance check.



## Functioning model

On the basis of exact experimental setups, we test new functions of our developed projects. These functional models are employed during our design development to verify and refine new innovative functions. Functional models communicate the main and characteristic qualities of a product.

## Prototype

These complex systems show the optical and functional elements of the final product. By a haptic contact with the detailed prototype, the product can be tested for usability, form and function before start of production.

## Design model

For exhibition presentations or performance in showrooms, we craft detailed and true to scale models. These models also can simulate complex functions in a simple way and reflect the design and distinctive features of the original product.





CUSTOMER  
**Daimler AG TecFabrik**

defortec SERVICES  
**Product design**  
**Construction**  
**Prototype making + montage**

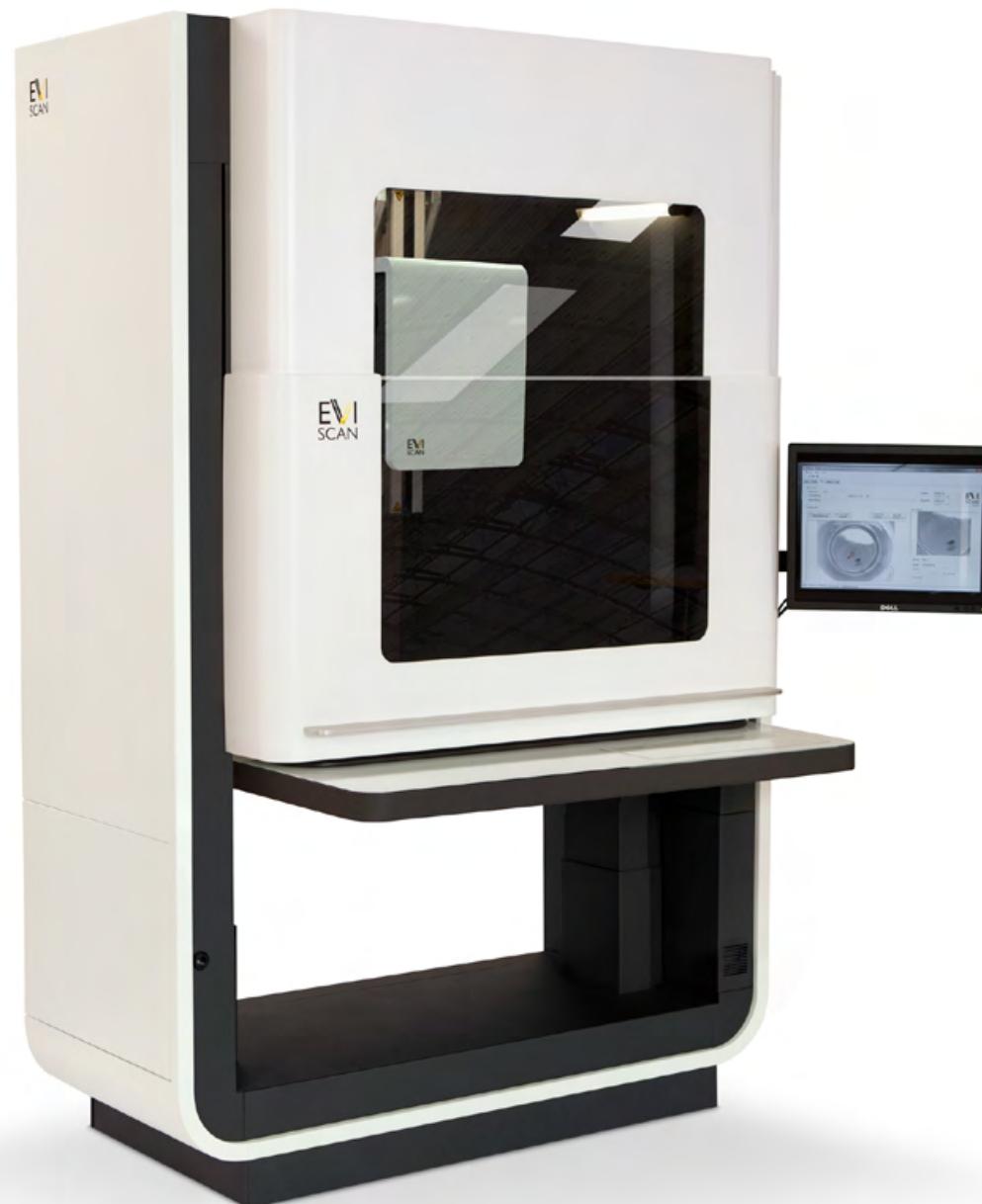
SPECIAL FEATURES  
**Human machine cooperation**  
**Development + realization**  
**Functional prototype**

The LeanFit mounting system from Daimler AG gives an outlook on the future collaboration between man and machine in modern assembly workstations.  
defortec developed the design concept and the functional structure of the entire system consisting of the Leanfit gripper system, control unit and control box.  
Defortec manufactured and supplied this system in record time, which was presented to the audience at the annual meeting in 2016 in Berlin. Click on the 360° panorama to have an impression of the whole annual meeting.

The sensitive robotic technology perceives the worker, dodges him actively and avoids any danger to the human. This system is used in production for the assembly process of car doors. Large-scale motions leads the robot by automated, precise positioning operations are performed by humans using a joystick. The focus of development was the user ergonomics and the implementation of strict MRK guidelines. The volume-reduced design gives a clear view on the door position and the screw points of the door hinges. The lightweight aluminum allows reduced weight, high strength and transparency of the components.



Focus Open 2016  
Silver



reddot design award  
winner 2012

## Case Study 02 | Eviscan 1000 | Forensic scanner

**CUSTOMER**  
**German eForensic GmbH**

**defortec SERVICES**  
**Functioning concept**  
**Ergonomic analysis**  
**Product design**  
**Construction**

**SPECIAL FEATURES**  
**5-month development period**  
**Design, construction and prototype**

EVISCAN offers an unique process for non-contact forensic analysis.

The evidence is analyzed optically without harmful substances, with traces of the perpetrator automatically identified and saved.

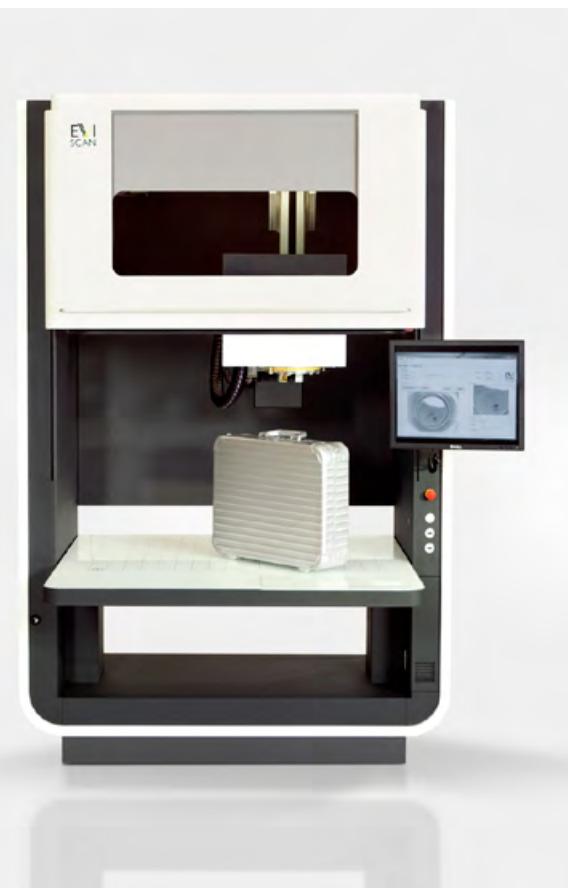
The detection without contact enables an undamaged trace or fingerprint and is therefore reproducible.

EVISCAN stands for consistent implementation of clean-design thinking. It is visible in the smooth body parts in the exterior as well as in the interior of the machine.

The easy-to-clean glass table with integrated glass keyboard prevents contamination of the evidence with dirt or foreign DNA particles. The integrated height adjustability offers lots of flexibility in the work process.

Awarded with:  
red dot award 2012  
Winner

German Design Award 2013  
Special Mention



**reddot design award**  
winner 2012





CUSTOMER

**Qunfeng**

defortec SERVICES

**Product design**

**System deisgn**

**Innovation development**

SPECIAL FEATURES

**unique brand identity**

**highest robustness**

**Modular system**

The manufacturing plant QFT 10-15 of the producer Qunfeng makes concrete tiles and baseplates and connects design with technology. The factory connects a robust and constructive buildup with a high vibration stability and a distinguished design concept with form character.

The modular buildup of QFT 10-15 enables a fast and easy extension of the factory for the production of bicolored tiles and baseplates.

The strong and dynamic form language paired with an innovative construction generates a matchless character and sets a new benchmark in the sector of the brick industry.

The innovative compression closure of the service doors resists strong vibrations, which guarantees save usage during the concrete compaction. The modular setup enables fast and simple expansion of the plant.

Yellow frame segments emphasize the position of the molding press and enclose the feed and color module. Transferred to the control panel and other system components, the new design differentiates the brand successfully from the competition.





**CUSTOMER**  
**GP Solar GmbH**

defortec SERVICES  
**Production concept**  
**Functioning concept**  
**Product design**  
**System design**  
**Construction**  
**Interface design**

**SPECIAL FEATURES**

**Tool-free manufacture**  
**Pure sheet metal construction**  
**Function integration**  
**Cost reduction**

GP-TEST ISO .Waf unites all components for testing the insulation resistance between the front and rear side of a wafer.

The wafer is the basic element of the solar cell and has to pass this test for reasons of quality assurance. GP ISO-TEST .Waf presents an advanced, high class design and material combination.

The design is not an end in itself; it is the result of an intensive research and development programme and creates a calm and professional appearance.

High-quality materials like steel, aluminium and glass give this clean appearance its special character, which thereby fulfils the claim of eco design. We developed a housing concept to align with our customer's investment plan. This was implemented without any tool costs.

Awarded with:  
iF product design award 2012



2012





CUSTOMER  
**GP Solar GmbH**

defortec SERVICES

**Product concept**

**Functioning concept**

**Product design**

**System design**

**Construction**

SPECIAL FEATURES

**Development of testing technology and of the - quick release - changing system**

**High complexity of the test processes**

**Multiple adjustment possibilities**

**Light coding test system**

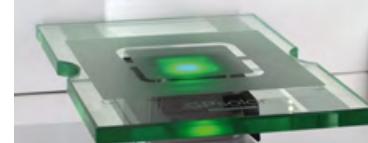
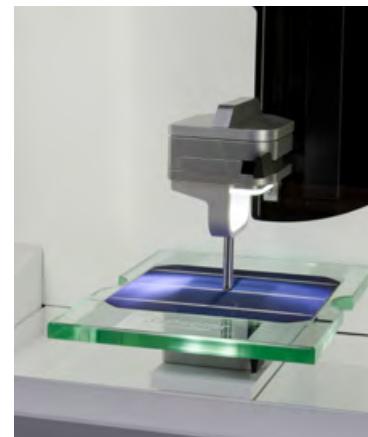
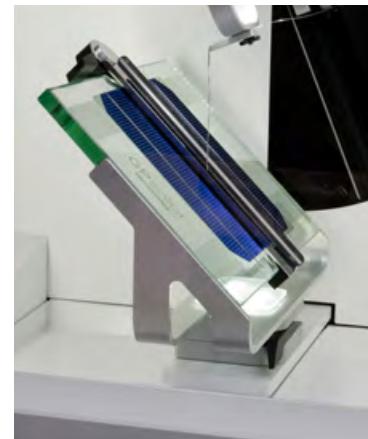
The new GP STAB-TEST .Pro accurately determines the mechanical stability of cells and wafers which are continuously getting thinner.

Six different methods can be applied easily, comfortably and securely to the test objects. The quick-change system, specially developed by defortec, enables a secure and intuitive change between the set-ups.

Intelligent components signalize readiness through light signals and provide high workplace security and test quality.

GP STAB-Test .Pro was completely reinvented and designed. The exterior as well as the interior was especially redefined under consideration of the workflow and has since become a benchmark in testing technology.

Awarded with:  
if product design award 2013



2013 ■





Gravity Mode



Process Done



Loading Mode

CUSTOMER  
**Daimler AG**

defortec SERVICES

**Product design**

**Prototype development**

**Design model making**

SPECIAL FEATURES

**Automation technology**

**Human machine cooperation**

**Light technology**

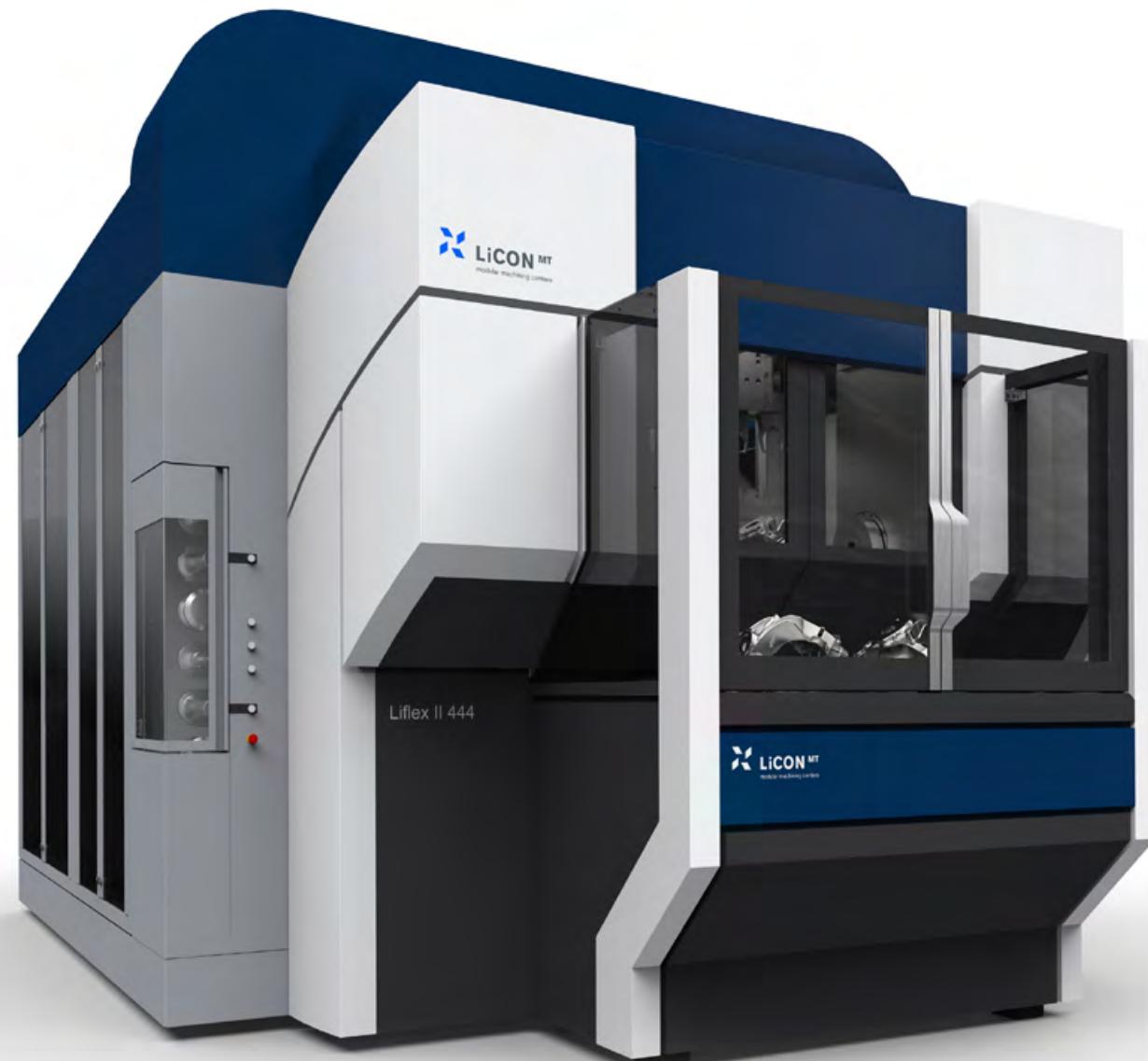
The human robotic cooperation means the future in the field of automation technology. The robot becomes partner of the working person and is able to cooperate without safety fences with the workers by his sensors.

defortec developed the design of this future technology for the TecFabrik of Daimler AG. The resulting robot head is used for automatic settings of sealing caps on the underbody of vehicle bodyworks.

The design shows pleasant, soft basic forms to lend this more human technology a matching expression. An important role is also played by the complex lighting elements, which communicate different tidings for movements or even the completion of a work step.

Next to the design development defortec supported with a detailed prototype development and the manufacturing of the complex housing system.





Case Study 07 | Licon Liflex II 444 | Twin-spindle high-speed milling centre

## CUSTOMER

Licon mt GmbH & Co. KG

defortec SERVICES

## Product design

## Innovation development

## Construction

## SPECIAL FEATURES

#### **4-month development period**

#### **Design and detail construction**

### **Watertightness requirements**

#### Innovation development

With a rotational speed of up to 14,000 r.p.m., the twin-spindle machining centre Liflex II 444 is one of the strongest milling machines of its type - high-efficiency in a minimum amount of space.

It is used in various areas, including in large volume productions such as in the automotive industry. The powerful, dynamic design represents the machining speed of the Liflex II 444. The design concept is focused on the process chamber and the area of the pallet changer. Large safety glass doors allow the user optimum insight into processing. The pivoting door system for the loading doors specially redeveloped by defortec improves the ergonomics for the workers and increases loading productivity.

Awarded with:  
iF product design award 2014

Nominated for:  
German design Award 2015





## Case Study 08 | NFLG GLB3000 | Asphalt mixing plant

### CUSTOMER

**NFLG - Fujian South Highway Machinery COM., LTD.**

### defortec SERVICES

**Product design**

**System design**

### SPECIAL FEATURES

**Design to cost**

**Module building technique**

**Product dimension**

The industrial plant GLB 3000 produced by the manufacturer NFLG presents itself with a new and innovative appearance. The factory tower with a height of 30 meters gets its characteristic and architectural impression by a function-oriented partial lining which are targeted inserted to the staircases and the floors.

The new generated space inside the system improves the work safety and the optical integration of a big product into an urban setting.

The new design features are applied to all relevant system elements for NFLG. This enhances the overall impact and shapes a new distinctive brand image.





CUSTOMER

SPECS Surface Nano Analysis GmbH

defortec SERVICES

**Product design**

**Innovation development**

**Construction**

SPECIAL FEATURES

**Module building technique**

**System design**

Building on the pioneering developments of recent years presented the company SPECS the revolutionary and first electron spectroscope for chemical surface analysis to the public held on 20th October 2015 in San Jose (California).

EnviroESCA enables as the first product of its class a fully automated and intelligent analysis and the evaluation of surfaces under real environmental conditions. Thereby it creates new application areas in industry, medicine and biotechnology.

defortec developed on behalf of the Berlin-based company SPECS the design for all EnviroESCA system components.

The significant feature is the asymmetric front with the emphasis of the workspace. The vertical, anthracite gray ribbon with the large field of view leads the focus on the main function of the system. By the color scheme and geometric but soft appearance the system obtains its high optical quality and its professional and calm appearance.

The laboratory system has an innovative modular system for fast adaptation to different inspection tasks. It shows new combinations of materials such as self-healing work surfaces.





product  
design award

2014 ■



Focus Open 2014  
Special Mention



## Case Study 10 | Palamides Smartliner 240 | Book-binding machine

CUSTOMER  
**Palamides GmbH**

defortec SERVICES  
**Product design**  
**Innovation development**  
**Construction**

### SPECIAL FEATURES

**3-month development period**  
**Design and detailed construction**  
**Innovation development**

Palamides presents the new smartliner240, with an innovative book-binding technology. The so-called smartflat technology is an environmentally friendly binding method which enables books to lay perfectly flat when flipped open.

defortec developed a professional design concept with large-scale mineral glass for this special product. The design stands for the simplicity and precision of the book-binding process, while the transparency of the glass surfaces reduces the machine's optical volume and offers exciting insights into the production process. The movement of the book block and the cover folding become visible. The book is produced right before the eyes of the observer.

The overall smartliner240 system offers very good maintenance accessibility, perfect handling and an extremely attractive and high-quality overall impression. The system is controlled using a removable iPad Mini with an intuitive user interface design.

Awarded with:  
Designpreis Baden-Württemberg, Focus Open 2014,  
iF product design award 2014 und  
German Design Award 2015

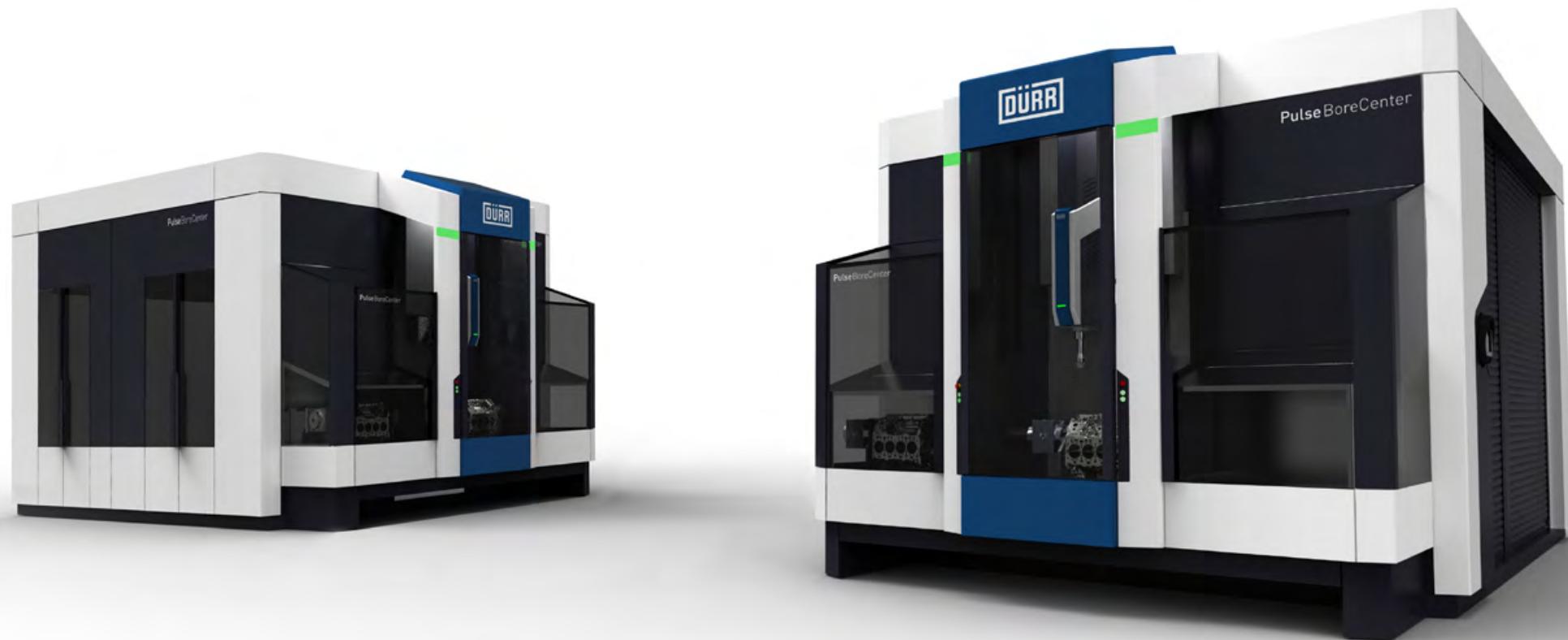


2014 ■



Focus Open 2014  
Special Mention





## Case Study 11 | Dürr EcoClean PulseBoreCenter | Surface-activation of cylinderbores by pulsed water jets

**CUSTOMER**  
**Dürr EcoClean GmbH**

**defortec SERVICES**  
**Product design**  
**Innovation development**

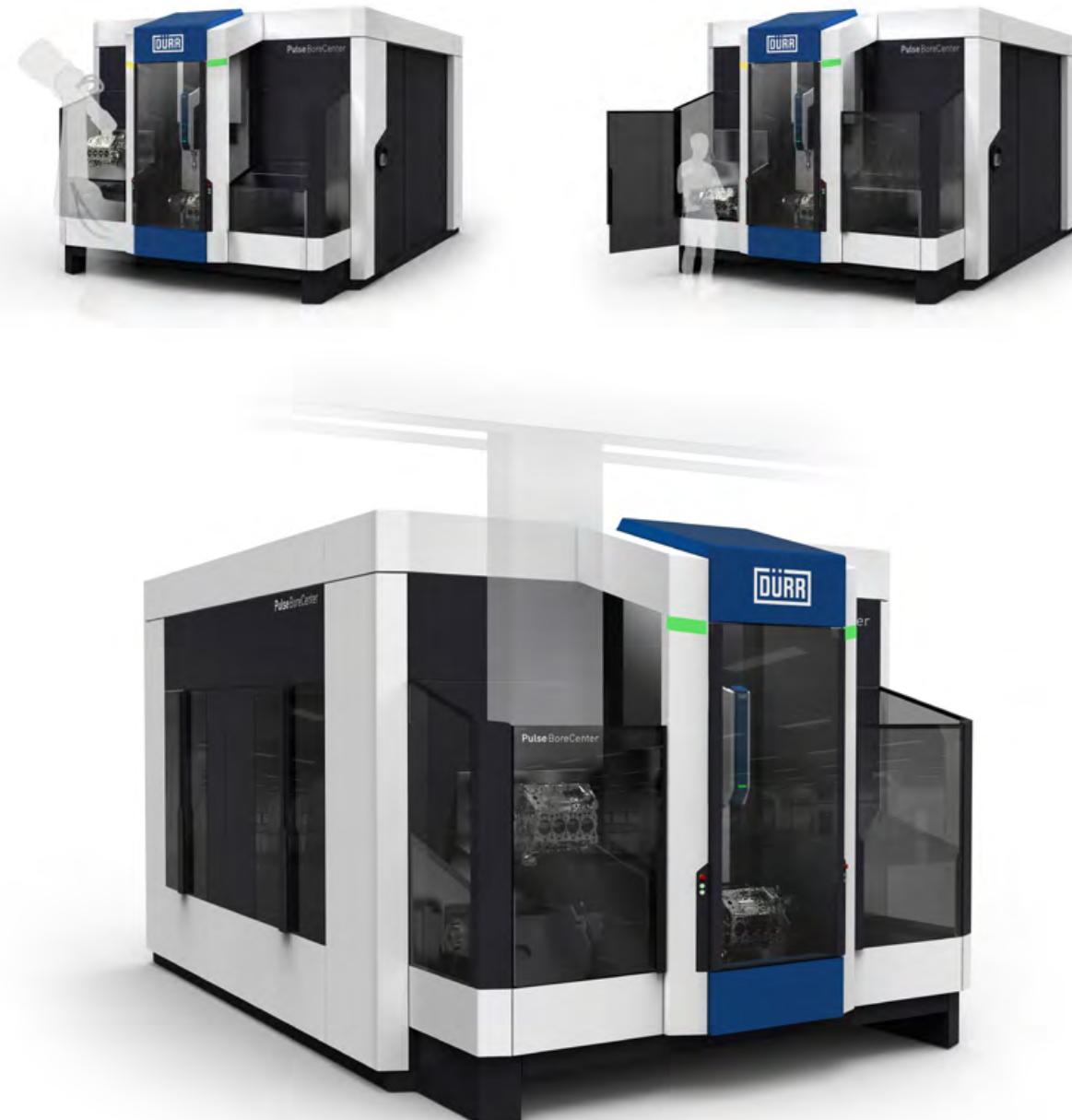
**SPECIAL FEATURES**  
**System design**  
**Flexibility**  
**Modularity**

The PulseBoreCenter manufactured by Dürr EcoClean shows a significant step towards optimized activation of cylinder bores by high-pressure water jets.

Core component of the installation is the EcoCBooster which emits a pulsed waterjet of highest kinetic energy. His impact results in a better surface quality of the cylinder bores for their thermal coating. At the same time this new technology reduces investment costs and energy consumption.

The design reflects the cubic and precise frame-design concept of all new Dürr products. A straight and powerful appearance focused on the process chamber by colour accent and branding. The large areas of grey-tinted mineral glass offer perfect monitoring of the loading positions and the central process chamber. These glass areas and the dark-grey parts surrounded in clear white frames reduce the optical volume of this huge automotive manufacturing device.

EcoCBooster as the main component shows a modular designhousing that underlines the specialness and performance of this innovative technology.





Focus Open 2013  
Silver



product  
design award

2014 ■

## Case Study 12 | Dürr EcoCCore | Operating panel

CUSTOMER  
**Dürr Ecoclean GmbH**

defortec SERVICES  
**Product design**  
**Interaction design**  
**Interface design**

SPECIAL FEATURES  
**Safety through simplicity**  
**Intuitive operation**

With the newly developed user interface of the EcoCCore, the user has all process parameters in view. defortec developed the clearly structured user interface for a fast entry into the safe operation of the complex system.

The intuitive user concept reduces the complexity of interaction and creates trust in the safety of process control. The user panel that was newly developed for this control offers the suitable framework. Due to its intelligent housing structure, it can be combined with the EcoCCore system or the additional devices in several configurations.

Awarded with:  
Designpreis Baden-Württemberg,  
Focus Open 2013  
iF product design award 2014

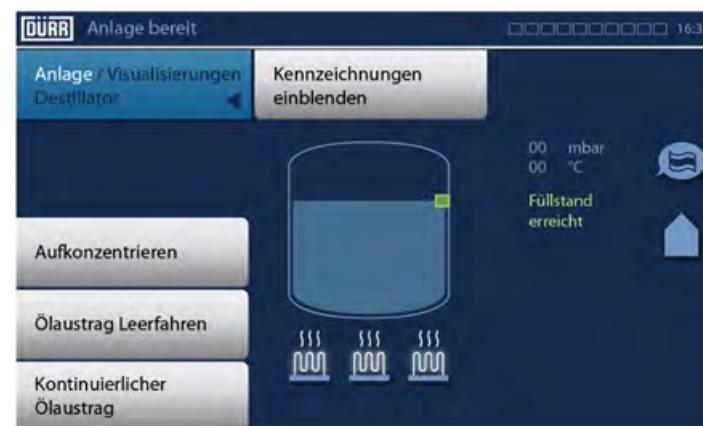


Focus Open 2013  
Silver



iF  
product  
design  
award

2014





product  
design award

2012

## Case Study 13 | centrotherm C.FIRE | Photovoltaic production line

**CUSTOMER**  
**centrotherm photovoltaics AG**

**defortec SERVICES**  
**Product design**  
**System design**

**SPECIAL FEATURES**  
**Transparent design**  
**Visible technology**  
**Design to cost**

Optimization of costs and innovative industrial design fit together: for centrotherm photovoltaics AG, a world-wide leading company for photovoltaic technology and equipment, we developed a new product design. The reduced and modern concept of color and form convince especially by its innovative combination of materials. Different functional system units are visualised by high contrast. The quiet appearance underlines the systems' sublime quality and reliability.

The approach design-to-cost, which is used here, connects optimal costs with supreme industrial design and user-friendly ergonomics. Design-to-cost means to search during a design development for the most cost-saving solution while complying with the design and quality standards. The centrotherm photovoltaics systems developed with the design-to-cost method, new design and enhanced technology are delivered to customers since 2011.

Awarded with:  
iF product design award 2012





## Case Study 14 | Merath NIXWIELICHT | LED lighting system

### CUSTOMER

**Merath Metallsysteme GmbH**

### defortec SERVICES

**Gesamtentwicklung**

**Analysis lighting engineering**

**Cost optimization**

### SPECIAL FEATURES

**Intelligent manufacturing**

**Low-priced und energy-saving**

NIXWIELICHT is a lighting system with modern, energy saving LED technique, developed for offices, large-area lighting and industrial applications. Intelligent production processes form an unrivaled low priced and first-class product, made in Germany.

From the start all aspects of production technology and in the development process were analyzed in detail to meet the aim of an affordable lamp „made in Germany.“

The result is the LED lighting NIXWIELICHT, which follows the concept of Universal design. An extremely versatile product that can address many different clienteles, inspires spontaneously but at the same time never sets design over function.





product  
design  
award

2008



DESIGNPREIS  
2009

NOMINIERT

Focus Green  
Gold 2008



## Case Study 15 | RTE Sonic TC™ | Acoustic material testing system

### CUSTOMER RTE Akustik und Prüftechnik GmbH

defortec SERVICES  
**Structural concept**  
**Product design**  
**System design**  
**Construction**

### SPECIAL FEATURES **Innovative technology and design** **Extensive adjustment possibilities** **Construction kit system**

The Sonic TC system works with completely new and revolutionary technology.

The testing objects, such as brake discs, are oscillated by a short mechanical impulse and the sound produced is assessed by means of a high-performance microphone and special software. The use of sound in testing materials reduces the application of other techniques with high energy consumption, like X-ray-systems or chemical testing methods.

The product's structure can be adapted in many ways to fit a wide range of conditions. The design presents a smart and ecological testing technology in a self-confident and professional manner.

Awarded with:  
 Designpreis Baden-Württemberg,  
 Focus Open 2008 in Gold  
 iF product design award 2008

Nominated for:  
 German Design Award 2009





## Case Study 16 | Ferromatik Milacron F-Series / Elektron | Modular injection molding machine

### CUSTOMER

**Ferromatik Milacron**

### defortec SERVICES

**Product design**

**Innovation development**

**System design**

### SPECIAL FEATURES

**Unique brand identity**

**International production**

**Variability**

Strategic brand development by design for modern energy-saving injection molding machines. The Ferromatik design concept creates brand recognition and individuality through the new trademark of the FINS at the clamping and injection unit.

They stand as a sign of dynamic and performance and are applied slightly varied to all products. In addition the horizontal gray centerline focuses the position of the main function and connects the areas visually.

The independence of the design system generates strong recognisability of the products and works as a brandshaper. The design contributes to the economic success and the change of the brand.

Awarded with:

iF product design award 2014

Nominated for:

German Design Award 2015





CUSTOMER  
**MAHA**

defortec SERVICES  
**Product design**  
**Innovation development**  
**Corporate identity**

SPECIAL FEATURES  
**Product improvement**  
**New lighting system**  
**Brand identity**

MAPOWER II from MAHA Maschinenbau Haldenwang is a new series of two post lifts for automobile garages. This series is characterized by a high improvement of technical details and a memorable naming and branding concept. The innovative design of this fork lifts offers a new quality of usability and mechanical aspects and guarantees a strong brand identity with a high recognition value.

Improvements like the new spindle covering as well as the new lifting unit and supporting arms generate a high-quality character. A special feature of the new MAHA lifting columns is the integrated LED lighting to improve the illumination level of the working area beneath the car. This function is unique for automobile lifting columns and reflects the user-friendly and holistic approach of the MAPOWER II products. The new design of the User Interface shows with its new integration of operating elements the high claim for intuitive use. In consideration of the Corporate Design of the MAHA products, dirt and clean areas were separated and are differentiated by color. This design of the User Interface is considering its rough and dirt intensive area of application.





## Case Study 18 | Rotzler Tarvos | Powerful and compact cable winch

CUSTOMER  
**Rotzler**

defortec SERVICES  
**Product design**  
**Functional concept**

SPECIAL FEATURES  
**Product improvement**  
**Innovation development**

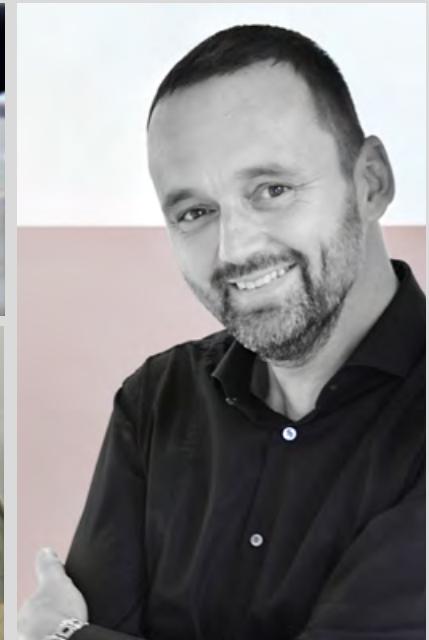
The winch series Tarvos manufactured by Rotzler distinguishes impressively from its competitors by its purist and powerful appearance.

Strong segmentation, as a recurring design feature, combined with a solid state device conveys stability and value. Smooth and flat surfaces, in combination with a distinctive branding, creates a professional appearance. The compact design as well as the used materials generates a high recognition value emotionalizing this technical product. The use of cast aluminum and cast iron parts allows soft and distinct shapes.

The accent color orange is used exclusively for the cable drum which clearly signalizes a potential source of danger. So the choice of color is not only depending on aesthetical requirements, but also fulfills a safety function. Static components such as the support and the trusses show stability and tranquility.

The dark gray finish gives a strong contrast to the orange of the drum. Unpainted aluminum at the gear cover, underlines the technical aspect of the drive side.





visionary design for products.  
smart solutions for success.  
**design for technology.**

defortec GmbH  
Breitwasenring 15  
72135 Tübingen/Dettenhausen - Germany

Fon: +49 (0)7157 / 72118-20  
Fax: +49 (0)7157 / 72118-50

[info@defortec.de](mailto:info@defortec.de)  
[www.defortec.de](http://www.defortec.de)

USt-IdNr.: DE 276883360  
Handelsregister Stuttgart HRB 737194  
Geschäftsführer: Dipl. Designer Stefan Grobe

We are looking forward to a successful collaboration!





defortec GmbH  
Breitwasenring 15  
72135 Tübingen/Dettenhausen - Germany

Fon: +49 (0)7157 / 72118-20  
Fax: +49 (0)7157 / 72118-50

USt-IdNr.: DE 276883360  
Handelsregister Stuttgart HRB 737194  
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[info@defortec.de](mailto:info@defortec.de)  
[www.defortec.de](http://www.defortec.de)